SPECIFICATION

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[EXERCISING APPARATUS INCLUDING EMBEDDED MUTIMEDIA COMPUTER SYSTEM]

Background of Invention

[0001] 1. Field of the Invention

[0002] The present invention relates to an exercising apparatus. More specifically, an exercising apparatus that provides personalized physical status information while simultaneously permitting the user to selectively access entertainment media and the Internet is disclosed.

[0003] 2. Description of the Prior Art

[0004] Due to cold or inclement weather, crowded city conditions, or merely for convenience, many people choose stationary exercise equipment as a means of maintaining or improving their physical fitness levels. Some types of exercise equipment, such as a treadmill, a stationary bicycle, and a rowing machine frequently require long sets of repetitive movements for maximum benefit.

[0005] Unfortunately, many users find spending long hours doing repetitive forms of stationary exercise hard work and boring, sometimes so much so that the exercise equipment is abandoned in favor of something more entertaining. While the hard work of exercise may be the nature of the beast, much thought and effort has been put into making the use of gym equipment more enjoyable.

[0006] Far beyond the obvious use of a nearby television or radio for distraction, U.S. Patent No. 5,240,417 issued to Smithson, et al. discloses a stationary bicycle that

simulates outdoor riding, even including a variable-speed air blower for realism. U.S. Patent No. 5,667,459 issued to Su discloses another exercising apparatus that provides a computerized game providing user feedback concerning exercise goals, such as the goal of running five miles per hour on a treadmill.

[0007] U.S. Patent No. 5,205,800 issued to Grant describes a treadmill that includes a video monitor and a video tape player so that a visual as well as tactile sense of outdoor terrain can be fed into the system. Additionally, Grunfeld, et al. (U.S. Patent No. 6,283,896) discloses a computer interface with remote communications ability that allows a sense of competition between two or more users on similarly outfitted exercise equipment.

[0008] While all of the above are excellent ways to encourage physical fitness by making the exercising equipment more enjoyable, not all users are interested in games and competition. Additionally, the prior art contains more drawbacks. Vibrations resulting from the use of the exercise machine make it difficult to incorporate modern electronics into the device without risking malfunction. A fixed set of controls limits flexibility in design and results in giving the user a single, or at best, a limited number of entertainment options. Most displays are of too low a resolution and too small in size to permit the reading of periodicals, e-mail, or web pages even if Internet connections are available. Users may want to choose specific video to watch during their workout instead of being limited to what is available on TV. In today's technology-savvy society, many exercisers could make better use of their exercising time if permitted a greater selection of personalized entertainment options during their workout.

Summary of Invention

[0009] It is therefore a primary objective of the claimed invention to disclose an exercising apparatus that solves the above-mentioned problems by providing access to user selected entertainment as well as user physical status information.

[0010]

The claimed invention discloses an exercising apparatus that includes a fully functional, stand-alone computer system. The computer system is fixed to the frame in a tiltable manner allowing adjustments for better angles for the user to view a

display screen. The display is an approximate letter-sized Super VGA LCD and is waterproof. Additionally, the display is touch operable and provides the control interface between the user and the computer. The computer system is fully embedded and includes an operating system and additional programs embedded in flash memory. The computer system is able to use a mass produced operating system such as a version of Microsoft Windows, Windows CE, Mac OS, or Linux to benefit from user familiarity and a large range of available programs and functionality. The computer system also includes full multimedia support and if equipped with sensors and software, can provide user physical status information and entertainment programs simultaneously. The computer system is able to function independently or interface with a LAN or the Internet via a wired or a wireless connection.

[0011] It is an advantage of the claimed invention that a fully embedded system is more resistant to damage resulting from vibrations generated through the use of the exercising apparatus. The large, Super VGA LCD display screen allows easy viewing and reading of the information presented and is adjustable, permitting a better viewing angle regardless of user height or size. Additionally, the display screen is made of a waterproof, wear-resistant material and provides a familiar, convenient, and changeable interface for controlling the computer. The multimedia and Internetting capabilities of the apparatus provide a nearly endless choice of user selected entertainment while remaining able to provide physical status, physical feedback, and physical training information. The claimed invention allows the user to integrate the exercise he or she needs into his or her normal, busy life.

[0012] These and other objectives of the claimed invention will no doubt become obvious to those of ordinary skill in the art after reading the following detailed description of the preferred embodiment, which is illustrated in the various figures and drawings.

Brief Description of Drawings

[0013] Fig.1 is an illustration of an exercising apparatus according to the present invention.

[0014] Figs.2 and 3 are illustrations of a computer system fixed to a frame of the exercising apparatus of Fig.1.

Detailed Description

[0015] As shown in Fig.1, the preferred embodiment of a stationary exercising apparatus 10 according to the present invention comprises a frame 30 with at least one surface that is designed to receive and resist user generated forces (in this case the pedals). Fig.1 illustrates the exercising apparatus as being a stationary bicycle, but is not limited to being such. Other conventional exercising equipment such as a treadmill, a rowing machine, or a weight machine are also equal candidates. Conventional exercising equipment design and purpose is well-known art and will not be described in detail here.

[0016] The exercising apparatus 10 further comprises a computer system 20 securely fixed to the frame 30 in a location permitting convenient user access and use. Fig.2 and Fig.3 illustrate one possible fixing means 25 wherein two portions of the frame 30 extend outward from the frame 30 and embrace opposite ends of the computer system 20 in a rotatable fashion allowing the user to adjustment the angle of view. Obviously alternative fixing means are possible and the fixing means 25 is used only as an example. It would also be possible to rotatably fix the computer system 20 to the fixing means using some kind of removable screw or clip allowing the complete removal of the computer system 20 from the exercising apparatus 10. However, due to vibrations generated by the exercising apparatus, a secure and permanent fixation is desired.

[0017] The computer system 20 comprises a relative large, approximately letter-sized or larger Super VGA LCD 22. The size of the display 22 allows easy reading or viewing of periodicals, e-mail, web pages, video, physical status feedback information, and other selected data. The angle of the display 22 is, of course, tiltable along with the computer system 20 because the display 22 is an integrated part of the computer system 20. The screen of the display 22 is waterproof and made of some wear-resistant material to prevent damage to the underlying electronics.

[0018] Furthermore, the screen of the display 22 is touch operable and provides a controlling interface between the user and the computer system 20. The touch screen characteristic of the display 22 eliminates the need of external buttons or controls and the related mechanical mechanisms and provides the flexibility of permitting the re-

designing or rearranging of controls through software without the need of changing the physical structure of the exercising apparatus 10.

[0019] The computer system 20 also comprises a flash memory. In this embodiment of the present invention, the size of the flash memory is approximately from 32M to 64M but using other sizes and types of programmable ROM would also work. Embedded within the memory is a computer operating system for controlling the computer system 20. The computer operating system can be custom designed but this embodiment uses a mass-produced commercial one such as Microsoft Windows, Microsoft Windows CE, Mac OS, or a version of Linux to reduce costs and to promote maximum user recognition, convenience, and flexibility in entertainment choices and uses.

[0020] Other programs can be optionally embedded within the memory of the computer system 20 providing full multimedia capabilities to the computer system 20. The display 22, in combination with the use of an earphone jack 35 built into the computer system 20, permit the user to enjoy a full multimedia performance during his or her exercise routine. Additionally, if sensors are connected to the exercising apparatus 10 or to the user"s body as is well-known art, the computer system 20 can display physical status information in whatever form the embedded software permits. It is also possible for the computer system 20 to generate and transmit to the exercising apparatus 10 or to the user physical feedback, such as adjusting the resistance to user generated forces, as an example.

[0021] The exercising apparatus 10 fully functions as an independent system but is also able to connect to LANs or the Internet. The preferred embodiment can utilize hard-wired or wireless communication with an 802.11b or 802.11a wireless LAN protocol. This permits connectivity without necessitating the need for MIS people or cabling problems. Once an Internet connection has been established, all features of the Internet are available through the use of the touch screen display 22. Therefore, it is possible for the user to scan web pages, read on-line periodicals, contact a personal fitness trainer, or watch user selected video with the mere touch of the screen display 22 without interfering with the exercise routine. The user can be simultaneously entertained and informed of physical status information.

[0022] Because the operating system is fully embedded, the exercising apparatus 10 instantaneously boots up or powers down, allowing the user to not waste time waiting for the software to load. When not operating in a wireless communication mode, the computer system 20 consumes minimal power; for example, a tablet PC providing all of the characteristics of the computer system 20 consumes approximately 6-7 watts in an independent mode and is the computer system used in one embodiment of the present invention.Power consumption this low allows the computer system 20 to operate off a single internal rechargeable battery for up to 10 hours, reducing possible maintenance problems in a large gymnasium setting. The exercising apparatus 10 can alternately use power supplied by an outside source or could use power generated within the exercising apparatus 10 by the repetitive motions of the user.

[0023] In contrast to the prior art, the present invention discloses several distinct advantages. The waterproof touch screen display 22 removes the necessity of having physical controls on the exercising apparatus 10 and allows the re-designing and repositioning of controls through software without having to alter the physical characteristics of the exercising apparatus 10. The ability to function as an independent apparatus or connect to LANs or the Internet via a hard-wired or wireless communication function allows maximum flexibility of choice in user selected entertainment sources and maximum ability for obtaining or exchanging physical status or training information. The use of an embedded computer system 20 reduces device failure due to vibrations to a minimum, and provides nearly instantaneous power-ups and power-downs saving the user"s time. The use of a commercially available computer operating system provides easy recognition and convenience to the user and great flexibility in usage. The multimedia abilities provided by the exercising apparatus 10 include user selectable audio and video and the Internet connection includes the use of on-line periodicals and web pages. The additional display of exercise feedback information keeps the user informed as to his or her progress while being entertained. The exercising apparatus 10 permits an enjoyable exercising experience.

[0024] Those skilled in the art will readily observe that numerous modifications and alterations of the device may be made while retaining the teachings of the invention.

Accordingly, the above disclosure should be construed as limited only by the metes and bounds of the appended claims.